

PROGRESS
OF
MEDICAL SCIENCE

MEDICINE

UNDER THE CHARGE OF

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Proteose Intoxication.—G. H. WHIPPLE (*Jour. Am. Med. Assn.*, 1916, lxvii, 15) reports further findings in his study of proteose intoxication which develops in intestinal obstruction, general peritonitis and acute hemorrhage pancreatitis. He and his co-workers have demonstrated experimentally that the intoxication of intestinal obstruction is due to a primary proteose which may be precipitated by five volumes of 95 per cent. alcohol or by half saturation with ammonium sulphite. They have found that the proteose is resistant to digestion by intestinal mucosa and by pancreatic and tissue ferments. An animal injected with one proteose is found to be resistant not only to this proteose but also to other proteoses. The toxic proteoses isolated from the intestine from the peritoneum and from the pancreas have certain biologic reactions in common but give no specific differential reactions. Proteoses may be formed in the experimental animals independent of bacterial action. COOKE, RODENBAUGH and WHIPPLE (*Jour. Exp. Med.*, 1916, xxiii, No. 6) have shown that there is a considerable rise in non-coagulable nitrogen in the blood in many conditions of intoxication, especially in acute intestinal obstruction. Without impairment of renal function, the non-coagulable nitrogen may increase from 25 mg. to 100 or 200 mg. per 100 c.c. of blood. Acute proteose intoxications due to the injection of a pure proteose into a normal dog may show a rise in non-coagulable nitrogen in the blood from 25 mg. to 40 or 60 mg. within three or four hours. To throw light on this observation, dogs have been kept in metabolism cages during starvation until the elimination of urinary nitrogen has become constant (usually four or five days). If, now, a small dose of pure proteose is given intravenously, there will be a great increase in the

urinary nitrogen excretion (100 per cent. or more), which may last three to five days. It seems clear that this nitrogen increase must result from tissue catabolism. Animals kept in the same way also show a great rise in the nitrogen elimination if a closed loop of intestine is produced. The authors have produced "a certain type of simple duodenal obstruction" with which there is little or no vomiting and no dehydration. In such cases animals may show over 200 per cent. increase in urinary nitrogen, and death in six to eight days, with a blood non-coagulable nitrogen well over 100 mg. per 100 c.c. Results quite similar to those in intestinal obstruction have been obtained in general peritonitis both septic and sterile, and in acute hemorrhagic pancreatitis, showing that there is a definite proteose intoxication in these conditions.

A Cause of Ascites.—C. F. HOOVER (*Jour. Am. Med. Assn.*, 1916, lxviii, 12) reports some clinical observations which are of interest in connection with the development of ascites. As the author points out, the cirrhotic changes in the liver itself are insufficient to explain the development of ascites, for cirrhosis of extreme grade may be present without accumulation of fluid in the peritoneal cavity. Again, it happens rather infrequently that a patient with cirrhosis of the liver will develop ascites, which may subsequently disappear for months or longer. Recently, Hoover had under observation a patient with alcoholic cirrhosis of the liver. Three weeks before admission to the hospital he had complained of swelling of the feet, legs and abdomen. He stopped work and quit drinking alcoholics, and the swellings disappeared, whereupon he resumed both work and drinking. The swellings again returned and he became jaundiced. The patient had a firm, enlarged liver. There was a caput medusae over which there was a palpable thrill and a loud venous hum. Systolic blood-pressure was 130, diastolic 90. Eight liters of clear yellow serous fluid were removed. Its specific gravity was 1.005, albumin 4.5 gms. per liter and cell count 180 per 1 emm. Within a few days, the patient began to improve, the jaundice diminished, and the swelling of the liver subsided. With these changes in the patients condition, there was no alteration in the systolic and diastolic blood-pressures and no visible change in the caput medusae. It was found, however, that the venous thrill and the murmur had disappeared, a fact which the author ascribes to a lowering of the portal pressure, coincidental with decrease in size of the liver. The findings in this case, together with other clinical observations, lead the author to believe that swelling of the liver is a cause of elevation of portal pressure and that increase of portal pressure is an important factor in the development of ascites of hepatic origin.

On the Reaction of the Cerebrospinal Fluid.—S. H. HURWITZ and C. L. TRANTER (*Arch. Int. Med.*, 1916, xvii (Part I), 828) have made a study of the reaction of the cerebrospinal fluid, as determined by the colorimetric method of Levy, Rowntree and Marriott. The technic for the application of this method to the spinal fluid directly is given. The technic is so simple that the authors consider it applicable as a routine procedure in examinations of cerebrospinal fluids. The authors summarize their findings as follows: As determined colorimetrically,

normal cerebrospinal fluid is more alkaline than blood, the difference in the hydrogen ion concentration of the dialysates of the two fluids being equal to 0.45, the value of pH for cerebrospinal fluid being 8.11; value of pH for blood, 7.66. No alteration from the normal reaction has been noted either in the blood or in the fluid of patients suffering from primary or secondary syphilis or from syphilitic affections of the nervous system. Thus far, no study has been made of the reaction of the cerebrospinal fluid in acute inflammatory conditions of the meninges.

The Etiology of the Diseases of the Circulatory System.—JANEWAY (*Boston Med. and Surg. Jour.*, 1916, clxxiv, 925) has attempted, in this article, to advance our knowledge of the ultimate and contributory causes of diseases of the circulatory system, with the aim of stimulating wide-spread efforts to reduce their prevalence, for reliable figures, brought forward especially by Bouldan, show a definitely increasing incidence of diseases of the heart, arteries, and kidneys. The author has been able to draw certain logical conclusions as the result of his analysis primarily of the etiological factors concerned in cardiovascular disease. Eleven etiological categories are presented as follows: (1) Diseases due to known bacterial infections; (2) probable, but improved bacterial infections; (3) syphilis; (4) rare infections; (5) parasites and tumors; (6) intoxications; (7) nutritional disturbances; (8) mechanical disorders; (9) nervous disorders; (10) developmental defects; (11) hereditary disease. The author leaves little doubt as to the possibility of reducing the mortality from circulatory diseases. The measures, in order of their importance, best calculated to secure the result, are: (1) A reduction in the incidence of syphilis in association with better diagnosis for and more intensive treatment in the primary stage; (2) reduction of preventable infectious diseases; (3) public education to regard "rheumatism" as a serious malady to be seriously treated, even in mild cases, by the medical profession. In addition to these, Janeway further suggests the establishment of convalescent hospitals for the protracted care of cardiac cases, combined with the development of employments adapted to the limitations of various types of cardiac cases, the promotion in general of good hygiene, temperance, and the periodic medical examination of the presumably healthy. "The need of the moment, therefore, is for more knowledge; not more knowledge of the dangers of circulatory diseases for the public which means propaganda, but more knowledge of their causes for the physician, which means ceaseless investigation."

A Case of Acute Hodgkin's Disease.—WHITTINGTON (*Quart. Jour. Med.*, 1916, ix, 83) presents a case most interesting, by reason of the peculiar course and many difficulties in establishing a diagnosis, which was made certain only by autopsy. The striking features in the case are noted as follows: (1) The onset was acute and with signs and symptoms most suggestive of peritonitis. (2) The patient subsequently suggested typhoid fever with low delirium, apathy, dicrotic pulse, diarrhea, leukopenia, and splenic enlargement. (3) There was a curious periodicity not merely of the fever but of the signs and symptoms as well. Each period of fever marked the initiation of emaciation, rapidly developing pallor, and progressive splenic enlargement; during

each afebrile period the spleen seemed to shrink. (4) There were pronounced signs of portal obstruction. (5) There was no enlargement of the external glands. (6) The blood showed a chlorotic anemia, a leukopenia of 3000, and no eosinophilia. On section the spleen was found much enlarged, as well as the retroperitoneal, portal, and thoracic glands. Histologically these showed the typical appearance of Hodgkin's disease, though the degree of connective-tissue proliferation was not far advanced. This fact and the occurrence of hemorrhagic areas in the glands fits in with the acutely fatal course of the disease. The whole case seems strongly to support the view that Hodgkin's disease is due to some infectious organism, at times much more virulent than at others.

SURGERY

UNDER THE CHARGE OF

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A Simple Technic for Intravenous Injections in Infants.—MARTIN (*Brit. Med. Jour.*, July 8, 1916, p. 40) says that on account of the small size and inaccessibility of the superficial veins in young infants, it is usually difficult, and often impossible, to give intravenous injections or even to obtain sufficient blood for the Wassermann reaction by the methods ordinarily employed. The difficulty is satisfactorily overcome by puncturing the superior longitudinal sinus through the anterior fontanelle, according to the procedure of Helmholtz. The following technic of the method is based on a series of 50 cases: The scalp over the anterior fontanelle is shaved and disinfected with iodine. No anesthetic is required. The child lies in bed with its head raised to a convenient angle on two pillows. A nurse holds the head securely with a hand on either side; the operator stands in front and on the right side of the child. The needle (held at an angle of about 50 to 60 degrees with the plane of the fontanelle) is inserted in the median line, half-way between the anterior angle and centre of the fontanelle. Some little force is required to push it through the firm pericranium, and when the resistance is overcome, one can feel that the point of the needle is in a cavity. The point should not penetrate more than one-eighth of an inch below the surface of the skin since the sinus lies immediately under the pericranium. If the needle is in the sinus blood flows at once into the syringe; should this not happen the needle has gone too deep, and has passed completely through the sinus. This is the mistake usually made by a beginner; it does not, however, cause any damage. The sinus is in many cases so shallow that an ordinary long pointed needle pierces the inner wall before the entire opening in the end of the needle is through the pericranium. A needle of size No. 20 or therabouts,

with a bevel measuring 2 mm., should be chosen in place of one with an ordinary bevel, which measures about 4.5 mm. Autopsies on patients in whom, for diagnostic or therapeutic purposes, the sinus has been punctured at intervals of from a few hours to several weeks before death, showed that in no case had any injury been done, nor in any case in which this method has been used have any untoward symptom followed.

Death After Nitrous Oxide-Oxygen Anesthesia.—McCARDIE (*Brit. Med. Jour.*, July 22, 1916, p. 109) says that in a somewhat large experience of nitrous oxide and oxygen anesthesia, with and without the addition of ether, he has never seen any other case like this one. The patient very nearly died during the operation and succumbed two hours and a half later without recovering consciousness. The operation, gastro-enterostomy for simple ulcer, was done in a thin, anemic, nervous man, aged sixty-six years, who was considered to be a good subject for nitrous oxide and oxygen anesthesia. The anesthesia lasted thirty-five minutes during the last fifteen of which hardly any gas was given but a good deal of air, and a large quantity of oxygen with rebreathing. There was no respiratory obstruction at any time. McCardie suggests the following points for consideration: That the circulation failed long before respiration. The failure could not have been due to traumatic shock, because it began before incision. The morphine could not be incriminated, because the patient had had as big or bigger doses before, and was not drowsy before operation. There was no asphyxia from obstruction to respiration and twice as much oxygen as is usually necessary was inhaled, while very little gas was given. McCardie does not think that death was due to too much gas, because circulatory failure occurred very early, beginning with the administration of the gas. The patient was psychically a very curiously nervous man, and McCardie thinks that psychic shock, together with anemia, causing heart weakness were largely responsible for the fatality. He admits, however, that this explanation is hardly satisfactory.

The Treatment of Hemorrhoids by Interstitial Injection.—BIRD (*Lancet*, July 22, 1916, p. 149) says that some years ago, he chose this treatment for hemorrhoids in himself for the following reasons: The prospect of complete relief in eight or nine visits, each taking a quarter of an hour; very slight pain of no duration; and at the same time no interference with his ordinary work and life. The only change that he noticed in the parts treated was an appreciable, but very slight, warmth. He is still perfectly comfortable. Pure carbolic acid as an injection into pile tissue was first used in the United States about half a century ago, but through misuse the practice fell into abeyance. Some thirty years ago it was resumed in a mitigated form by Dr. Hoyt, of New York. The deviations from his treatment in many hands seemed to have caused disappointment, perhaps through seeking more rapid or more complete success. There is no stretching of the sphincter and no confinement to bed. The solution for injection consists of equal parts of hazeline and distilled water, to which is added 10 per cent. of pure carbolic acid; the whole of the acid is not dissolved unless warmed; the bottle must be shaken when the solution becomes turbid from the

finely disseminated acid, and is then ready for use. It should not be allowed to run on mucous membrane or skin, as in both cases it gives rise to soreness. Bird has had no trouble with carbolic acid absorption, though he has injected as much as 15 min. at one sitting. The treatment has, at least, two disadvantages: the number of visits, and the passage of the anal speculum. He has found the best speculum to be Kelly's sphincteroscope, both for the first examination and the ensuing treatment, but it should always be well warmed before insertion and well lubricated. He has had made for himself a self-retaining speculum, as Kelly's requires one hand to retain it during the injection by the other. It is better not to inject a pile near the juncture of the mucous membrane and the skin or external to that line before the inner or upper portions have been treated. External piles (inflamed) should be allowed to subside under appropriate treatment before injection and the patient should be advised against taking wine, spirits, and highly seasoned dishes and should be given medicines to produce soft evacuations. A platino-iridium needle not too fine and about an inch and a quarter long is perhaps the best, though he uses a short, stiff, needle on a prolongation that fits on to the Record syringe, as this gives a clear view of the length of the speculum. Care should be taken to keep the needle in the long axis of the bowel and a slight side-to-side motion as the plunger is pressed on tears the interior of the pile, and if the needle is kept in for a few seconds there is seldom any bleeding. After an injection or two the pile surface becomes hard, so that future injections should be made between the old scars until the pile is completely cured. An ordinary pile condition requires eight or ten injections, a commencing pile only one or two. At the first visit, Bird now gives preference to injections of not more than three minimis superficially to different parts of the surface of the pile; this makes subsequent injections almost painless and prevents the swelling caused by larger injections made more deeply. Cases with two-day intervals between injections do better than those with longer intervals.

Separation of the Lower Femoral Epiphyseal.—MACAUSLAND (*Surg., Gynec. and Obst.*, 1916, xxiii, 147) reports two of these rare cases and a statistical collection of thirty-six cases collected from the literature. This type of fracture usually occurs from direct violence, such as the catching of a leg in the spokes of a revolving wheel. The deformity is usually a displacement of the epiphysis backward into the popliteal space, the lower end of the shaft projecting its sharp edge forward above the patella. Conservative treatment of such displacement by the inclined plane, or other traction and splinting are useless. Closed reduction under an anesthetic is accompanied by dangers, injury to the popliteal vessels and nerves, and the improbability of obtaining complete reduction. The open reduction is necessary and is not only simple, but should always succeed in giving proper alignment and a clean blood-free joint. The details of operative procedure are as follows: A tourniquet is applied. A lateral incision, usually on the inner side, is carried down to the seat of fracture by blunt dissection, and the accumulated blood-clot thoroughly washed out. With a blunt dissector or other heavy instrument, the lower fragment is pried into place, usually without much resistance and usually with complete

anatomicol reduction of fragments. The well-fitted serrations give to the reduction a valued stability and as well insure against the slightest possible injury to the epiphysis. After closure of the wound and removol of the tourniquet, a plaster cast is applied from the groin to the ankle. At the end of one week the plaster is split and a few degrees of motion made without removal of the leg from the posterior shell. This process is repeated gently each day. The plaster is taken off after ten days, and from this time on there may be expected an uneventful convalescence.

THERAPEUTICS

UNDER THE CHARGE OF

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Epilepsy, with Special Reference to Treatment.—DERCUM (*Jour. Am. Med. Assn.*, 1916, lxvii, 247) says that the first indication in the treatment of epilepsy is that the patient, though defective and deviate, should lead as physiological a life as is compatible. To attain this end a life without physical or mental strain, close to nature, in camp or on the farm, should be adopted by the epileptic. This, indeed, is the principle applied in the various epileptic colonies. In a given number of cases it is attended by an improvement in general health and a notable diminution in the number of seizures. There can be no doubt that the benefit is largely due to the increased oxidation of waste and toxic substances and the general increase of physiologicel efficiency which result from an outdoor life. In addition three points should be borne in mind: The diet should be so modified that in this organism, already toxic, as little strain as possible be placed on the liver, the thyroid, and other defensive glands. For this reason the red meats are to be partaken of sparingly. The carbohydrates also are to be diminished. To take the latter in large amount is to hamper the oxidation of the tissues, an oxidation which for the obvious reason of the autotoxicity of the patient should be maintained at as high a level as possible. In the diet, emphasis should be laid on the white meats, the succulent vegetables, and milk; eggs also may be permitted. Stimulants of all kinds are, of course, to be excluded. The various avenues of elimination should be kept freely open. If the diet does not of itself counteract the constipation frequently present, a moderate dose of a simple saline or laxative water may be given daily. The patient should drink water freely between meals to promote the action of the kidneys, and should take a luke-warm sponge bath daily to promote the action of the skin. The bath should not be such as to promote an active reoction, but merely to favor elimination. Resort to medicine must, of course, be had in many cases to influence or control the seizures. Time will not permit the extended discussion of these, but after all is

said and done, experience teaches that chief reliance must be placed on the bromides. Regarding their efficient administration, however, one important point must be borne in mind, namely, the principle of sodium chloride withdrawal introduced by Richet and Toulnuse. If table salt is withheld, the bromides instead of being eliminated are retained, and are effective in much smaller dose. Dercum has been in the habit, for many years past, of administering the bromides in the form of sodium bromide, at the same time instituting as rigid a withdrawal of the sodium chloride as possible. There can be no doubt that under these circumstances the sodium bromide takes the place, in a measure, of the sodium chloride in the tissues. If in a case so treated the sodium bromide be discontinued and sodium chloride resumed, the bromide is rapidly eliminated in the urine. But one other point of importance remains. In a given number of instances the physiological level of the patient may be distinctly raised by the administration, from time to time, of small doses of thyroid extract; from an eighth to a quarter of a grain, three times daily, seldom more. Thyroid in small doses, long continued, stimulates the elmin of glands of internal secretion, increases oxidation, and promotes metabolism generally.

Studies on a Case of Bichloride Poisoning.—LEWIS and RIVERS (*Johns Hopkins Hosp. Bull.*, 1916, xxvii, 193) say that the necessity of prolonged and vigorous treatment of every case of bichloride poisoning cannot be too strongly emphasized. Many apparently moribund individuals have been saved by properly directed and vigorously pushed therapeutic measures. Death should be the only indication for a discontinuance of treatment prior to the complete recovery of the patient. Retention of waste nitrogen is undoubtedly a factor in the early fatal issue of these cases. There are rarely any signs of uremia. The protein sparing powers of the carbohydrates are of the greatest value in delaying the appearance of the extreme grades of nitrogen retention which usually precede death. If carbohydrates cannot be retained by mouth, glucose may be given intravenously in a 10 to 50 per cent. solution. In addition to its protein sparing action the glucose itself acts as a mild diuretic. It is probable that alkalis have a decidedly beneficial action. Maenider has recently pointed out that they are capable of protecting the kidneys from the full effects of uranium intoxication. It is possible that large doses of sodium bicarbonate given intravenously soon after the taking of the poison would exert a similar protective action in bichloride poisoning.

The Treatment of Paralysis Agitans with the Parathyroid Gland.—BERKELEY (*Med. Record*, 1916, xc, 105) says that further experience seems to justify the opinion that the administration of the parathyroid glands does not assure a "cure" for paralysis agitans, but asserts that from 60 to 70 per cent. of the patients treated by this remedy have been greatly benefited, and that in such patients the progress of the disease has been arrested or very materially retarded. The author believes that much the best preparation of the parathyroid gland is an acetic acid extract of the fresh glands (commonly, though very inaccurately, called a "nucleoprotein" extract) made by treating the

ground or triturated glands with cold distilled water, filtering, and then precipitating with very minute amounts of acetic acid. This extract is now prepared commercially, and may be obtained without great expense. Berkeley uses this extract in doses of one-fortieth of a grain either by mouth in a capsule with milk-sugar or hypodermically in a solution. The solution is given in doses of 15 minims, and, if it is injected with reasonable care, produces no local effects of a disagreeable nature. The article by Berkeley is not entirely convincing but very enthusiastic about the success of the parathyroid treatment in "hundreds of cases."

Arsenobenzol in the Treatment of Syphilis.—OKINSKY and MITCHELL (*Jour. Amer. Med. Assn.*, 1916, **lxvi**, 867) write concerning arsenobenzol which is an arsenic preparation manufactured in America as a substitute for salvarsan. The authors gave 184 injections to 75 patients suffering from syphilis in its various stages and believe that same conclusions as to the value of this remedy can be drawn. Its action has been uniform, its toxicity low, and its therapeutic results have been excellent. The immediate reactions have been almost negligible, and remote untoward results entirely absent. They employed it in both early and late cases, including those with primary lesions before eruptive manifestations have occurred; in the so-called secondary and tertiary stages; also in latent cases, and those involving the cerebro-spinal system. The authors give the detailed method of the preparation of the solution of the drug for intravenous injections. The preparation of the solution and the intravenous administration are very similar to that of salsarsan. In their conclusions Orinsky and Mitchell state that arsenobenzol, together with mercury, offers as good a method of treatment of syphilis as any heretofore used. In its uniform and non-toxic action, arsenobenzol commends itself as a remedial agent of great value in the treatment of syphilis, and its successful preparation marks an achievement in American chemotherapy. While a sufficient experience has not as yet been had from which to draw ultimate conclusions, they believe its therapeutic accomplishments, together with its safety of administration, recommend its continued employment.

The Reactions and Results of Treatment in Cerebrospinal Syphilis.—DRAPER (*Jour. Amer. Med. Assn.*, 1916, **lxvi**, 400) has made observations on 38 cases, watched over periods of from three months to three years. These 38 patients were given 1126 intravenous injections and 355 intraspinal injections of medicated serum. The technic of administration was the usual one. He found that the severest reaction to intravenous injections was of the anaphylactic type. The most frequent reaction to the intraspinal injections was pain. The severest was an aseptic meningitis, which might have been anaphylactic in origin. Twenty-six patients out of the total of 38 were economically useless before treatment. After treatment 22 were back on full time work. The rapidity and degree of improvement depended directly on the intensity of the treatment. Draper emphasizes the importance of keeping the patients at work on part time at least during the months of treatment in order that their period of disability may be shortened.

The Treatment of Pneumonia with Ethylhydrocuprein (Optochin).—LOEB (*Berlin. klin. Wchnschr.*, 1915, lii, 1108) reports his results in the treatment of pneumoain with optochin. He believes that the remedy, to be effective, should be given early, as soon as chill, fever, pains in chest and cough have appeared without waiting to make the diagnosis certain. The effect of the remedy is seen principally in a critical fall of the temperature usually on the day following its administration. The crisis may be a true one but as a rule there is a return of the fever and it is necessary to repeat the remedy. The results reported are favorable. Occasionally toxic symptoms resembling those due to overaction of quinine are produced by optochin, but these symptoms disappear promptly if the remedy is withdrawn for twelve to twenty-four hours.

The Local Treatment of Meningeal Syphilis.—ZENNERICH (*München. med. Wchnschr.*, 1915, lxii, 1696) sees no especial advantage in intraspinal administration of salvarsanized serum as compared to iaections of small doses of salvarsan itself. He does not state this as a proved fact as he says that later and more complete reports may modify this view. In the term meningeal syphilis Zennerich includes cerebrospinal syphilis and also metaluetic infections. He emphasizes that treatmeat must be begun early in these syphilitic affections in order to secure results. He does not believe that the ordinary combined treatment, salvarsan and mercury, as applied to constitutional syphilis can exert any influence on meningeal syphilis. Intraspinal injection of salvarsan must be given with great caution, for too concentrated solutions may cause an increase in symptomis and may even produce a myelitis.

Strontium Salicylate.—BLANKENHORN (*Jour. Amer. Med. Assn.*, 1916, lxvi, 331) says that salicylate of strontium has had a therapeutic reputation for which there is no satisfactory foundation discoverable. The chief advantage claimed for strontium salicylate as compared with sodium salicylate is that the strontium salt gives rise to fewer unpleasant by-effects, particularly digestive. The author endeavored to determine if strontium salicylate differed from sodium salicylate either as regards therapeutic efficiency or undesirable by-effects. The drug was easily given in all cases, and no more than the usual protest was made about the taste. Strontium salicylate is only slightly soluble in water and hence must be given in powder form which is less convenient and less accurate than the use of a stock solution of sodium salicylate. He found that strontium salicylate in comparable doses produced the same gastric and other toxic symptoms produced by other salicylates. No difference in therapeutic efficieney was observed. The fact that stroatium salicylate is much more expensive and more inconvenient to give than sodium salicylate also helps to destroy the tradition held by some that this form of salicylate is superior to the more common sodium salt.

The Treatment of Paresis and Tabes Dorsalis by Salvarsanized Serum.—COTTON (*Amer. Jour. Insanity*, 1915, and 1916, lxxii, 125, 355, 485), in this article which is continued through three numbers of the

above journal discusses the various methods that have been advocated for the treatment of tabes and paresis. The article includes interesting detailed case reports and tabulation of the results in the individual cases, for which the original article should be consulted. With regard to various methods of treatment Cotton considers from his experience that the Swift-Ellis method is as efficacious as any. The criticism of this method is that it has to be administered too slowly because of the dangers of too frequent intravenous injections of salvarsan. Treatment is thus extended over a considerable period of time before permanent results can be obtained. Consequently Cotton says that he has been combining the Swift-Ellis and Ogilvie methods on alternate weeks with good results. The author believes that the value of mercury and iodide of potassium as an adjunct to salvarsanized serum in the treatment of paresis and tabes is at present an unsettled question. With regard to the use of salvarsan or neosalvarsan there is also considerable difference of opinion. At first Cotton used neosalvarsan exclusively. The general opinion seemed to be in favor of salvarsan, and so the author has used salvarsan during the past nine months. His results were no better than with the neosalvarsan, and in two cases he had a pronounced aseptic meningitis with salvarsan, an experience which never occurred with the use of neosalvarsan. The total number of cases of paresis reported by Cotton was 66 and in all 600 treatments were given. From this number the author selected 31 patients for detailed study who were treated for at least six months, but in all but a very few cases the treatment extended for over two years or the patients have been observed for that length of time. Of this group of 31 patients, 11, or 35.5 per cent. are classified as arrested; 7, or 22.5 per cent. were much improved; 7, or 22.5 per cent. were not improved, and 6, or 19.5 per cent. died. Only 4 cases of tabes are reported occurring in patients from forty-eight to seventy years of age, and no especial conclusions can be drawn from these patients. For his conclusions Cotton emphasizes the fact that in the use of salvarsanized serum we have an agent which does cause definite arrest in paresis, which arrest includes improvement in the clinical symptoms, physical signs and a corresponding change in the biological reactions from positive to negative. To be effective the case must be treated in the early stages, as advanced stages show no favorable reaction to the treatment. The length of time is not always an indication of the severity of the symptoms, but the majority of cases cannot be helped after two or three years have elapsed. Treatment must be persistent and uninterrupted, grading the amount of dose and frequency of treatment to the condition of the patient. Taboparesis should be cautiously treated, usually with small doses and not oftener than every three weeks. The remissions caused by the treatment cannot be compared to spontaneous remission, for the percentage in the former is 35.5 per cent., and in the latter case only 4 per cent. The change in the cell count, globulin content, blood and spinal fluid Wassermann reactions are the direct result of the treatment and not to be compared with the variation found in untreated cases of paresis. The efficacy of the treatment depends not on the method used but on the stage of the disease; hence the necessity for early diagnosis in paresis and prompt treatment as soon as possible.

A Contribution to the Chemotherapy of Tuberculosis.—KOGA (*Jour. Exper. Med.*, 1916, xxiv, 107) writes concerning a preparation of copper and potassium cyanid since named cynocuprol. The preparation used by Koga is a double salt of copper and potassium cyanid diluted 1 to 2000 and treated in a special manner to prevent the formation of free hydrogen cyanid. He does not state what this special manipulation is, but insists that unless this manipulation is carried out, the injection of the remedy is not safe for human beings. Koga's contribution is divided into two papers. The first deals with the effect of the new remedy in animal experiments, in which over 150 guinea-pigs were used. In his summary of the effect of cynocuprol in his animal experiments, he says that judging from the macroscopic and microscopic study of the animals its action seems to be about as follows: The effect of a single injection upon the lesions is either negative or inconspicuous. But after repeated injections of the preparation the congestion and leukocytic infiltration about the lesions are markedly decreased, the cheesy material resulting from degeneration of the lesions and other degenerative products are in process of absorption, and young connective tissue is being actively produced in the periphery. While these changes are taking place the number of the bacilli is also being reduced until finally they can no longer be found on microscopic examination. However, the complete disappearance of tubercle bacilli was disproved in some of the animals apparently cured by the treatment. Emulsions were made of the lungs, liver, spleen and other organs of some of the animals, apparently healed, and injected into the peritoneal cavity of guinea-pigs. Such injections were followed in some instances by the development of tuberculosis. Koga's experimental work is supplemented by a clinical report of sixty-three cases of human tuberculosis in various stages treated by the new remedy. Eleven of these cases are reported in detail. The author's conclusions, which seem to be justified by the reports, are "that the preparation greatly improves or apparently cures pulmonary tuberculosis and surgical tuberculosis in the first and second stages, and that it seems also to produce beneficial effects upon the disease in the third stage. The duration of these beneficial effects is still to be established by more numerous trials and many years of observation. The preparation must be given iotropeously, and the doses must be increased or decreased according to the age and constitution of each patient. Moreover, it should be borne in mind that the pathological phenomena and the constitution of each patient have much to do with the determination of the dose. The manner of action of the preparation is not yet entirely clear. But if it acts primarily upon the tissues which bear the tubercular lesions and then indirectly against the germ, as he assumes at present, the activity which the tissues exert will have much to do with the efficacy of the preparation. If this hypothesis is correct, according to Koga, the minimum doses (10-12 mg.) will be best suited to a patient who is greatly emaciated, and should be gradually increased as the reactions, pathological processes, nutrition, etc., indicate. In any case, the dose of the preparation must be determined by the condition and constitution of the patient. In animal experiments he says that he has been fortunate enough to obtain results which no other preparation has given. The clinical application and the establishment of its full efficacy in human cases must be left to the physician."